

REMARKS

Claims 1-24 are pending. Claims 1-24 were rejected. Independent claims 1, 14, and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cruz, "Linux Kernel: Problem with interfaces and ioctl", August 1, 2001 in view of Weinstein, "Zombie Process." Dependent claim 2 and independent claim 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cruz and Weinstein and further in view of Faulkner (USP 6,002,870).

Cruz notes that "a zombie process is created" each time ioctl is used to "change the IFF_UP flag." Weinstein describes reaping zombie processes. "The only way is to get the process's parent to execute the wait system call. Generally shells are the parents of processes. A shell will "reap" all of its outstanding children just after it executes a command and before it prompts for the next command... just executing a command (or often just hitting a carriage return to force the next prompt) is sufficient to cause the shell to execute the wait call." (paragraph on pages 2-3).

"If, however, the parent process is hung, it will never reap its children, which means that the zombies will stay there... So killing the parent will cause all of its child zombie processes to be reassigned to init, which will immediately reap them." (first full paragraph on page 3).

The Examiner in the initial office action mailed 8/2/2004 stated that Cruz does not disclose "modifying the parent process... However, Weinstein in an analogous art teaches 'modifying the parent process associated with the defunct child process, wherein modifying the parent process allows the parent process to collect exit information associated with the defunct child process.'" The Examiner cited page 2, lines 35-36 in the Weinstein reference. The Applicants reviewed the cited portions of the Weinstein reference as well as the noncited portions and found no teaching or suggestion of "modifying the parent process."

As noted in the previous response to office action, Weinstein states that "just executing a command (or often just hitting a carriage return to force the next prompt) is sufficient to cause the shell to execute the wait call" or "killing the parent." However, neither executing a command nor killing the parent are "modifying the parent process to collect exit information."

The Examiner in a final office action mailed 2/9/2005 stated that “contrarily to applicants’ argument, the examiner does not equate ‘executing a command or just hitting a carriage return’ to ‘modifying the parent process to collect exit information.’ Rather, the examiner considers that it would have been obvious to one of ordinary skill in the art ... to modify the parent process to collect exit information by getting the parent to execute the wait system call.” However, the Examiner does not provide any suggestion in any of the cited references or otherwise that it would be obvious “to modify the parent process” to collect exit information.

By contrast, the Applicants believe that it is not obvious to “modify the parent process” to collect exit information. UNIX operating systems have been around for decades, yet none of the references relating to defunct child processes even suggest modifying the parent process. Despite a long felt and unmet need, the only solutions available rely on terminating parent processes or restarting a system. Both solutions are highly disruptive as noted in the Background section of the present application.

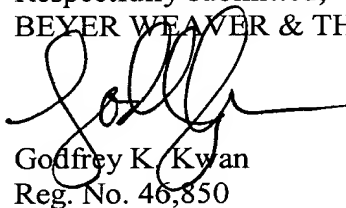
Consequently, claims 1, 14, and 17 are allowable in their current form. However, to facilitate prosecution, claim 1 has been amended to recite “modifying the parent process by providing a thread associated with the parent process that collects exit information associated with the defunct child process.” None of the references cited including Cruz, Weinstein, and Faulkner teach or suggest “modifying the parent process by providing a thread that collects exit information.” Faulkner makes no mention of zombie processes or defunct processes. Modifying a process by attaching an agent thread and reaping zombie process or defunct processes are distinct ideas merged by the techniques and mechanisms of the present invention.

Consequently, none of the references teach or suggest modifying a parent process to collect exit information. In light of the above remarks relating to independent claims 1, 14, 17, and 20 and dependent claims 2 and 9, the remaining dependent claims are believed allowable for at least the reasons noted above.

CONCLUSION

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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